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ABSTRACT

Through a study of student housing trends, it was found that college students seem to prefer apartment living over dormitory living for several reasons. Thus, students are more and more moving off campuses to rent apartment dwellings that may be unsafe or substandard. Five higher education institutions (Syracuse University, Roberts Wesleyan College, Clarkson College, Rochester Institute of Technology, and University of Rochester) have, since 1965, built apartment dwellings for their students. It was found that one, two, and three bedroom apartments could be constructed for less than the cost of building dormitories on campus. In addition, these housing units afforded more parking facilities for student use, and the need for costly dining hall facilities was greatly reduced. (HS)

apartment type student housing

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ACUHO research and information committee

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ASSOCIATION OF COLLEGE & UNIVERSITY HOUSING OFFICERS

RESEARCH & INFORMATION COMMITTEE

APARTMENT TYPE COLLEGE HOUSING

Prepared by
Clifton C. Flather

The Research and Information Committee of ACUHO has tried in the past to prepare and disseminate information on special topics which were believed to be beneficial to the membership. This technical bulletin represents a new approach to fulfilling this goal.

Recent reports from Housing Officers in ACUHO member institutions indicate that Apartment Type student housing is becoming more common as a current or future part of their student housing program. The R & I Committee requested one of its members to compile a bulletin for the ACUHO membership on the topic of student housing.

Clifton C. Flather was Administrative Director of the New York Dormitory Authority for twenty four years until his retirement to the position of consultant to the Authority this past year. In that time, he has seen the transition of thought from traditional residence structures to the apartment type of student housing.

The following information represents a valuable addition to any housing officer's library. The R & I Committee commends Mr. Flather's response to our request to you.

William M. Klepper, Chairman
R & I Committee

GARDEN APARTMENT TYPE STUDENT HOUSING

Over the past seven or eight years colleges and universities all over the nation have been experimenting with the construction of married student housing. Different types of construction have been used and different methods of planning tried, such as high-rise vs. garden type.

One conclusion has become quite evident, and that is that a two-bedroom apartment can be built at a surprisingly low cost. The Dormitory Authority has already constructed a number of garden apartment type projects and the costs for individual two-bedroom apartments were approximately as follows:

Syracuse University (1965)	$12,113.00
Roberts Wesleyan College (1965)	17,644.00
Clarkson College (1966)	20,982.00
Rochester Institute of Technology (1968)	17,350.00
University of Rochester (1968)	15,718.00

The variations in prices shown were due to differing site conditions and architect fees, variations in planning, types of furniture purchased, and common facilities offered.

On the basis of the above general statements, it is evident that if four students are housed in a two-bedroom apartment, the cost per student will average about $4,200.00. One must also recognize that the housing described above was completed for five different colleges and universities, with great variations in requirements. One can assume, therefore, that a well thought out standard program could, in all probability, stabilize these prices, in most cases close to the average figure, plus escalation.

In the last four or five years there has been an increase in the number of students leaving campuses to find apartments in adjacent communities. These students have found that by living together in small groups in apartments the cost of rent is considerably less than that necessarily charged for the more costly regular type dormitories now being constructed on the various campuses. College personnel responsible for the housing of these students is constantly aware of the sub-standard and unsafe living conditions which exist in many of the makeshift privately owned apartments. The colleges and universities have tried various means to keep students happy with campus housing such as providing refrigerators in each room, etc. Many attempts to improve the existing campus living conditions, however, have been hampered by insufficient space, inadequate wiring, poor ventilation and the inadequacy of the added features.

The primary dissatisfaction of the students, and this is true across the nation, seems to stem from the fact that they now consider themselves adult persons and want to live as adult persons. The standard dormitory with two in a room has proven to be a far cry from satisfying this need. For example, if a student wishes to entertain in his room, his roommate cannot study, sleep or enjoy any personal solitude of any type. With the average dormitory having a minimum number of public areas, entertaining is restricted and the small kitchenettes provided in these areas practically prohibit individual use, including storage of individually owned foods and beverages. These public rooms eventually adapt themselves only to group functions. A student is hard pressed to procure a snack for himself during the evening hours or during an in-between meal period, and it is almost impossible to get a hot or cold drink.

The average student room, by virtue of its size, prohibits comfortable lounge chairs in addition to beds, desks and study chairs. One is almost forced to lounge or relax publicly, when some privacy would be more desirable. Another of the problems with the dormitory is parking, and quite often a student finds his parking area at a considerable distance from his living quarters. The large parking area is a major cost factor plus costly maintenance, including snow removal.

The two-bedroom apartment, if properly designed, could be constructed at a cost of somewhere between $4,000.00 and $5,000.00 per student and would enable students to entertain in a living room, study or sleep in the privacy of a bedroom, use toilet facilities under less crowded conditions, store food and drinks, make ice cubes, prepare their own meals, and live in a way better fitting their adult status. Another advantage of the garden type apartment is the possibility of having parking facilities adjacent to each building for its tenants.

The creation of these garden type apartments will present several problems which in themselves will vary according to the location of the college. One major problem is land cost, per 1,000 students. More land will be required for two-story, garden apartments than for the normal three-story or high-rise dormitory. Many colleges are surrounded by inexpensive, unused farm land, whereas others might require the purchase of expensive land, occupied in whole or in part.

Another problem is the questionable need for dining halls. It is probable that this apartment-type housing will reduce the need for costly dining halls, but until the pattern is established, this is not predictable. It could well be, however, that present dining halls might suffice for some time to come. One major university for which we are now building a large housing development is replacing one of the major cafeteria lines in the new dining hall, with a delicatessen line, where students can buy food to take out. This may become a definite trend on other campuses.

Another advantage of low cost garden apartment is their flexibility. These apartments (one-bedroom, two-bedroom, or three-bedroom) can be rented to students, married students, or faculty, as the need may be. Worth considering is that if any educational unit, college or university, should be forced to reduce its size, it is conceivable that these apartments would be saleable to the public whereas a normal dormitory would be most difficult to sell for any other use with many and costly modifications. With the cost of education rising by leaps and bounds, with the need for education growing constantly, and with funds becoming more and more difficult to procure, it would seem that the garden type apartment could be the most logical answer to housing costs of any to date.

There are other factors which are of value in considering apartments. This type of housing could be constructed by local contractors or smaller firms of contractors and would not necessarily require budding restricted to those few contractors who can produce multi-million dollar structures. Housing could also be built a few units at a time as needed. This type of construction can usually be built in a fraction of the time required to build the normal type steel, stone and concrete structure. Some of the projects which were mentioned at the beginning of this report were built within periods of seven to nine months, whereas two years or more is an expected construction period for a dormitory project. A saving in financing is inherent in this saving of time. A well-designed unit could be built by prefabricated or modular methods of con struction with additional savings in time.

The garden type structures can be as fire-safe and maintenance-free as any standard dormitory. In apartment type planning there will not be public areas, such as hallways, public lounge rooms or public toilets, and probably the student will take better care of their quarters. Most of the damage we find today is not in the student rooms but in the public areas.

On the pages which follow we present the details of some of the Dormitory Authority Married Student Housing Projects which have been built on various campuses. Attention is called to the floor plans of the two styles of apartments which have been quite successful at the University of Rochester, and to the plans of the prototype student apartment which is being considered for various campuses of the State University of New York.

On page six we present a chart giving the land cost per student for normal and high-rise construction and similar costs for apartment type construction. The figures would seem to indicate that the availability of the land is more important than the cost, because, even when the land cost is high, the per student cost is a relatively small part of the overall cost of the project per student.

DORMITORY AUTHORITY OF THE STATE OF NEW YORK
NORMANSKILL BOULEVARD ELSMERE, NEW YORK

MARRIED STUDENT HOUSING PROJECTS

	Clarkson College of Technology	Roberts Wesleyan College	Rochester Inst. of Technology	Syracuse University	Univ.of Rochester
Buildings	10	1	15	35	32
Date of Completion	7/1/66	11/30/65	8/7/68	1/8/65	9/1/68
Apartments	100	24	120	308	256
Two-Bedroom Units	60	12	60	224	256
One-Bedroom Units	30	12	60	84	-
Studio Style Units	10	-	-	-	-
Basement Excavation	Partial	None	Partial	None	Partial
Sq.Ft. Two-Bedroom Unit (Net)	768	816	999	756	920-999
Gross Area Including Basement	77,103	20,734	139,052	235,060	338,175
Gross Area Without Basement	73,340	Same	109,064	Same	242,634
Construction Cost	$1,515,947	$ 344,758	$1,623,428	$3,030,089	$2,991,682
Per Sq.Ft. Gross Area	$19.66	$16.63	$11.67	$12.89	$8.85
Per Sq.Ft. Without Basement	20.67	Same	14.88	Same	12.33
Total Project Cost	$1,901,694	$ 408,978	$1,892,780	$3,467,125	$4,023,880
Per Sq.Ft. Gross Area	$24.66	$19.72	$13.61	$14.75	$11.90
Per Sq.Ft. Without Basement	25.93	Same	17.35	Same	16.58
Two Bedroom - % of Area	66.20%	56.66%	55.00%	78.26%	100%
Construction Cost - Two-Bedroom Unit	$16,726	$16,278	$14,881	$10,586	$11,686
Total Cost - Two-Bedroom Unit	$20,982	$17,644	$17,350	$12,113	$15,718

Notes: Excavation - Clarkson, partial, three buildings; R.I.T. half each building; University of Rochester 18 buildings full, 14 buildings half.

Unit Size - University of Rochester; Duplex Units 938 Sq.Ft., Flat Units 920 Sq.Ft. and 999 Sq.Ft.

Unit Costs - Based on Two-Bedroom Square Footage applied to Gross Area Costs

DORMITORY AUTHORITY OF THE STATE OF NEW YORK
NORMANSKILL BOULEVARD ELSMERE, NEW YORK

MARRIED STUDENT HOUSING PROJECTS

	Columbia Univ. - Faculty Apts. & Garage	Cornell Univ. Married Housing	R.P.I. Married Student Housing	N.Y.U. Sterling Forest	N.Y.U. Village Towers
Buildings	1	28	2	2	2
Date of Completion	4/10/64	7/31/62	8/18/65	12/10/63	7/15/66
Apartments	182	246	53	20	358
4-Bedroom Units	20	0	0	0	0
3-Bedroom Units	0	0	0	0	116
2-Bedroom Units	20	190	41	12	184
1-Bedroom Units	122	56	6	8	58
Studio Style Units	20	0	6	0	0
Basement Excavation	Garage	Partial	Full	Partial	Full
Sq.Ft. 2-Bedroom Unit (Net)	1,010	836	572	820	716
Gross Area, Including Basement	412,450	197,024	44,705	15,295	250,000
Gross Area Without Basement	329,960	192,234	33,530	14,298	237,000
Construction Cost	$4,707,250	$2,619,770	$ 991,450	$ 251,318	$7,561,700
Per Sq.Ft. Gross Area	$11.42	$13.25	$22.18	$16.43	$30.24
Per Sq.Ft. Without Basement	14.26	13.15	20.50	17.58	26.06
Total Project Cost	$5,062,750	$2,933,770	$1,169,050	$ 278,287	$8,230,090
Per Sq.Ft. Gross Area	$12.27	$15.19	$26.15	$18.19	$32.92
Per Sq.Ft. Without Basement	15.34	15.57	34.87	19.46	34.73
2-Bedroom - % of Area	6.1%	83%	70%	69%	55%
Construction Cost - 2-Bedroom Unit	$14,357	$11,444	$16,927	$14,451	$22,603
Total Cost - 2-Bedroom Unit	$15,441	$12,816	$19,959	$16,002	$24,601

DORMITORY AUTHORITY OF THE STATE OF NEW YORK
NORMANSKILL BOULEVARD ELSMERE, NEW YORK

TYPICAL LAND COSTS

Institution	People	Acres	People Per Acre	Land Cost Per Acre	Land Cost Per Person
Standard Type Dormitories					
SUNY at Albany Tower No. 1	1,152	14.85	77.57	$10,000	$129.00
Tower No. 2	1,356	15.62	86.81	10,000	115.00
Tower No. 3	1,277	18.55	68.84	10,000	145.00
Tower No. 4	1,315	22.77	57.75	10,000	173.00
SUA&TC at Alfred, Stages XI, XII, XIII	1,014	11.17	90.86	400	4.00
Clarkson College of Technology - Residence	240	2.84	84.51	Gift	5.92*
SUC at Geneseo, Stages VII, VIII	827	10.03	82.45	12,000	145.00
SUC at Geneseo, Stages X, XIII	1,045	13.00	81.10	3,300	41.00
SUC at Oswego, Stages VI, VII	800	5.74	139.38	40,000	287.00
Rochester Institute of Technology - Dormitories	420	8.69	48.33	1,971	40.78
Apartment Type Construction					
SUNY at Albany - Proposed Apts.	1,456	50.87	28.63	$7,300	$255.00
Clarkson College of Technology Married Student Housing	320	7.74	41.34	Gift	12.10*
Syracuse University Married Student Housing	1,064	29.90	35.59	$ 100	2.81
University of Rochester Graduate Housing	512	27.65	18.52	1,100	59.39

*Based on estimated land value at the time of acquisition

DORMITORY AUTHORITY OF THE STATE OF NEW YORK

7.

MARRIED STUDENT HOUSING PROJECTS

Net Square Foot Area Typical One & Two Bedroom Apartments

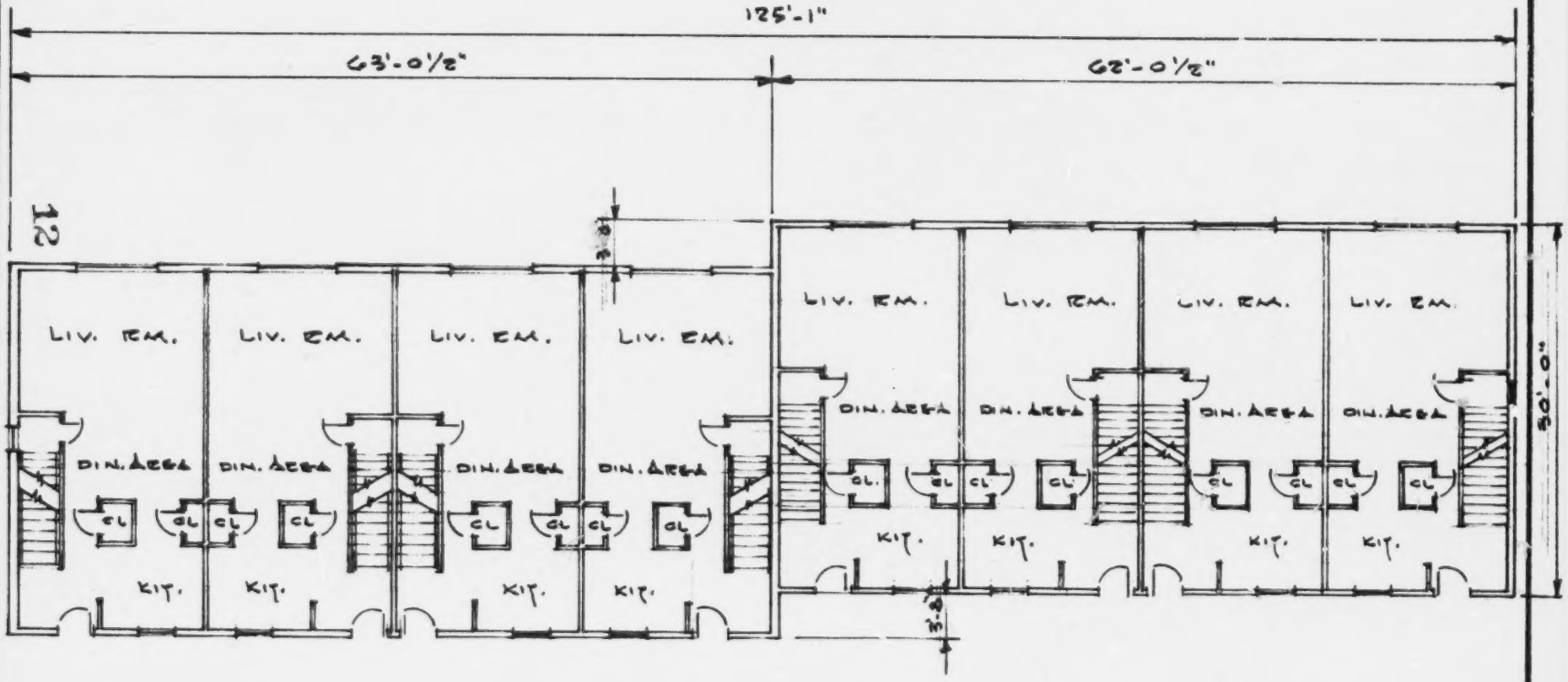
	Clarkson	Cornell	N.Y.U. Sterling Forest	R. I. T.	R. I. T.*	Syracuse	Univ. of Rochester	Univ. of Rochester	Univ. of Rochester Duplex
Living-Dining	280	184	266	324	314	255	324	320	253
Kitchen	56	92	45	58	57	70	58	58	56
Bedroom	106	126	122	174	156	130	174	159	146
Bedroom	106	93	120	135	-	103	135	106	130
Closets	34	28	22	49	18	21	49	36	34
Storage	8	-	13	50	6	35	50	11	14
Study or Add. Room	27	-	83	-	-	-	-	-	-

* One Bedroom Apartments

THIS FLOOR PLAN TOTALS 3750 ☐'

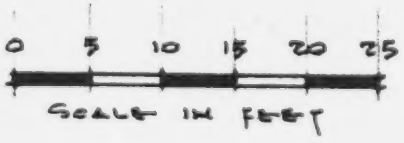
THIS BUILDING CONSISTS OF 8 - 2 BEDROOM APARTMENTS

EACH APARTMENT HAS 2 FLOORS OF LIVING SPACE & STORAGE IN THE BASEMENT.



12

FIRST FLOOR PLAN



NOTE: PAGES 8 & 9 SHOW TWO-FLOOR APARTMENTS WHICH PROVIDE FOR EQUAL SIZE BEDROOMS. THIS IS A DESIREABLE LAYOUT FOR HOUSING SINGLE STUDENT. SEE ALSO PAGES 13 & 14.

DORMITORY AUTHORITY

UNIVERSITY OF ROCHESTER

GRADUATE STUDENT HOUSING

ROCHESTER, NEW YORK

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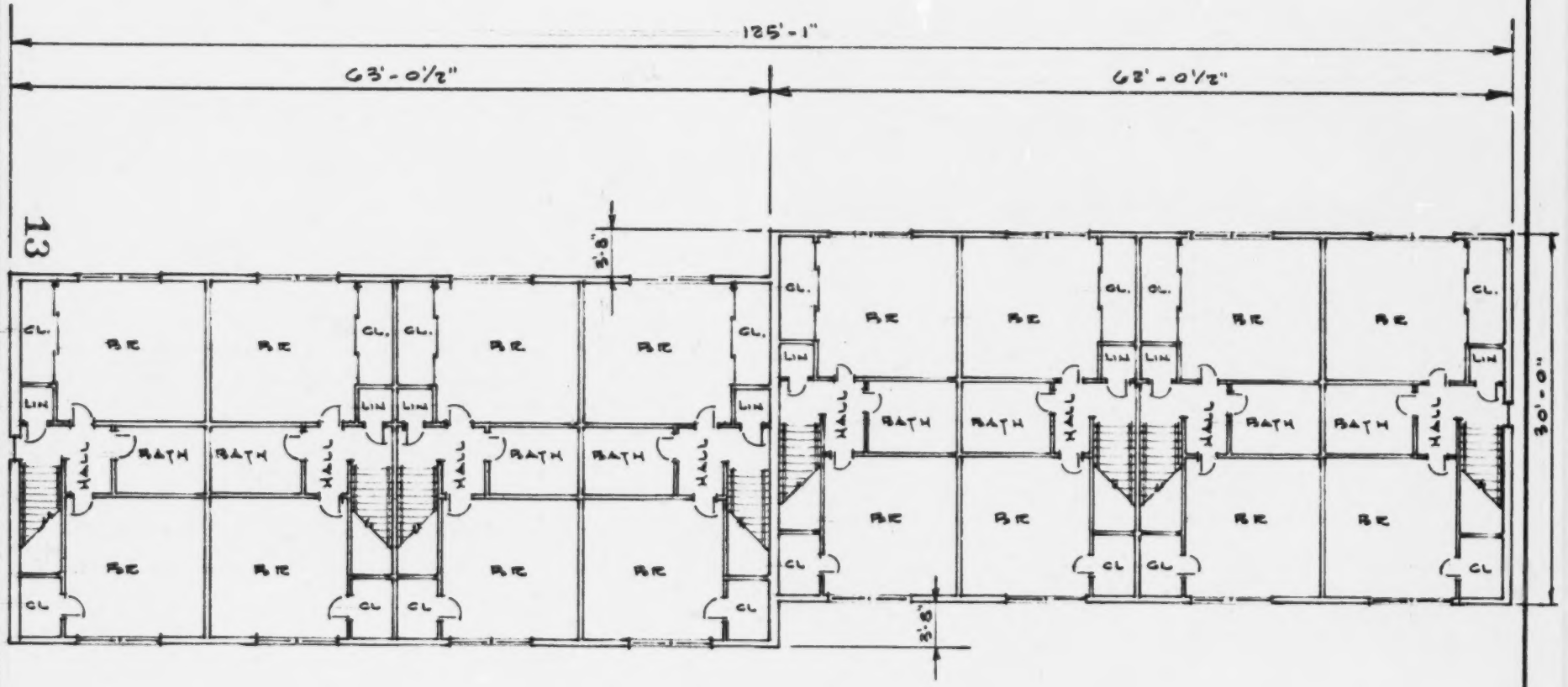
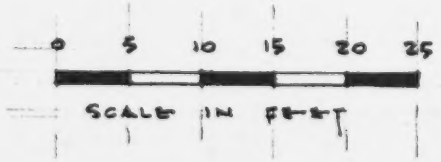
THIS FLOOR PLAN TOTALS 3750 ft²

THIS BUILDING CONSISTS OF 8 - 2 BEDROOM APARTMENTS.

EACH APARTMENT HAS 2 FLOORS OF LIVING SPACE & STORAGE IN THE BASEMENT.



SECOND FLOOR PLAN



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UNIVERSITY OF ROCHESTER
GRADUATE STUDENT HOUSING
ROCHESTER, NEW YORK

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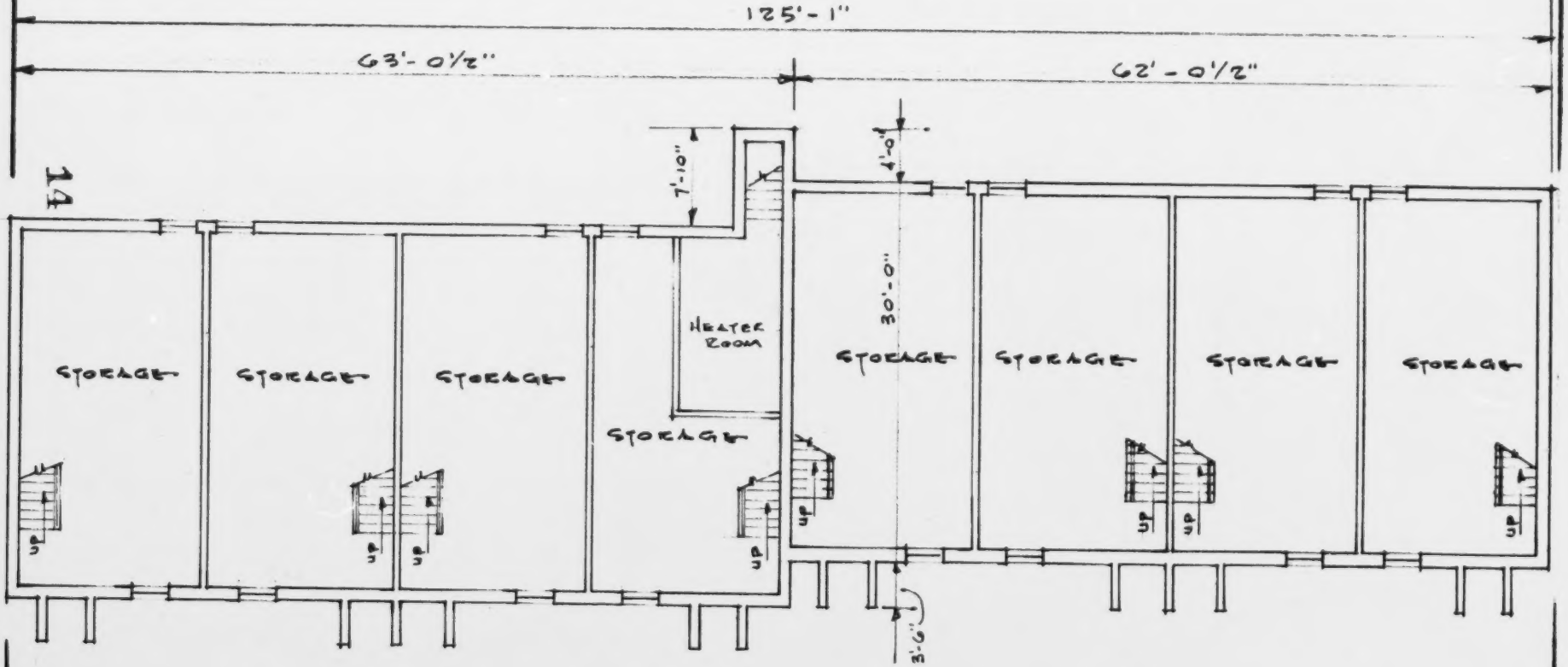
USABLE SPACE 3,750 ☐'
(THIS INCLUDES STORAGE & HEATER ROOM)



BASEMENT PLAN

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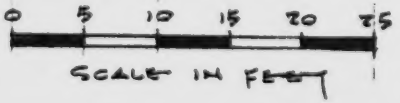
UNIVERSITY OF ROCHESTER
GRADUATE STUDENT HOUSING
ROCHESTER, N.Y.



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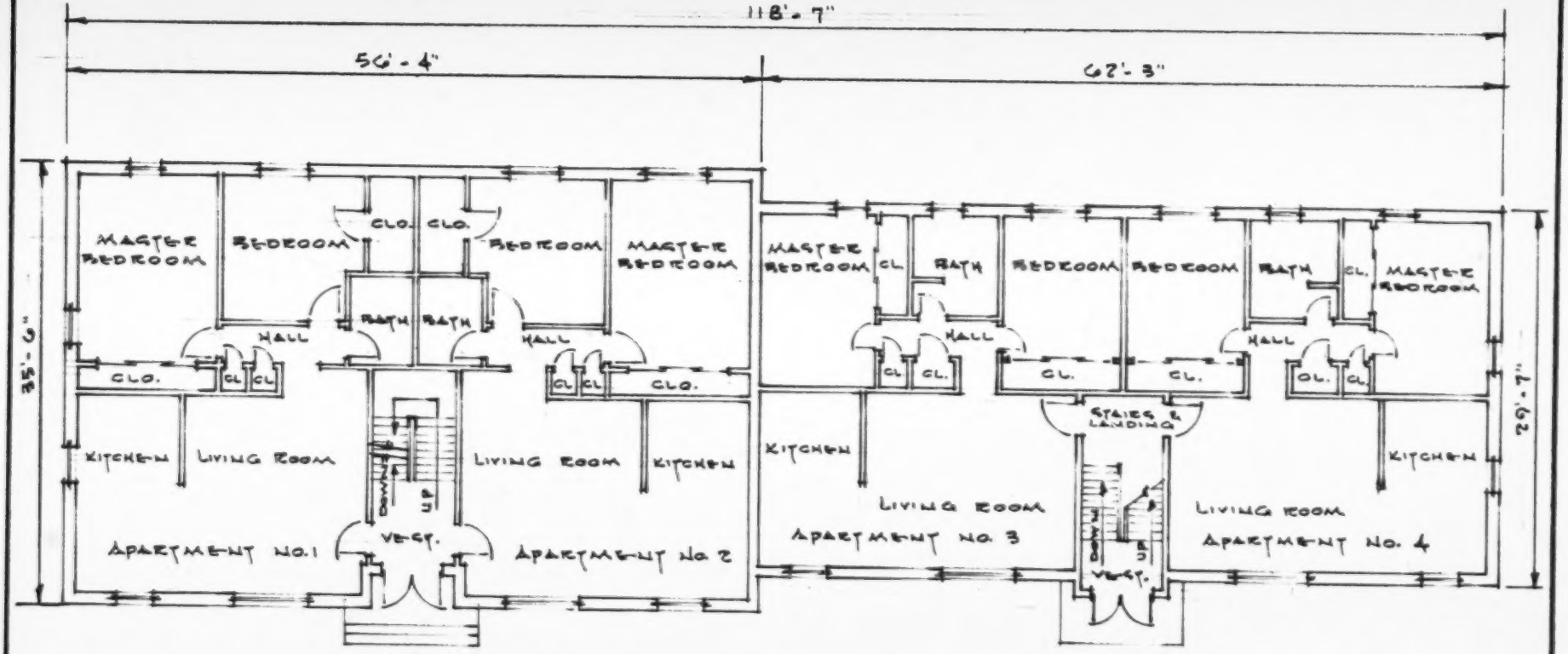
TOTAL AREA = 3839 SQ. FT.
APT. # 1 & 2 = 999 SQ. FT. EA.
APT. # 3 & 4 = 920.5 SQ. FT. EA.



FIRST FLOOR PLAN

NOTE: PAGES 11 & 12 SHOW ONE-FLOOR APARTMENTS WITH UNEQUAL SIZE BEDROOMS. THIS IS A LESS DESIREABLE SOLUTION FOR SINGLE STUDENTS.

0 5 10 15 20 25
SCALE IN FEET

DORMITORY AUTHORITY
UNIVERSITY OF ROCHESTER
GRADUATE STUDENT HOUSING
ROCHESTER NEW YORK

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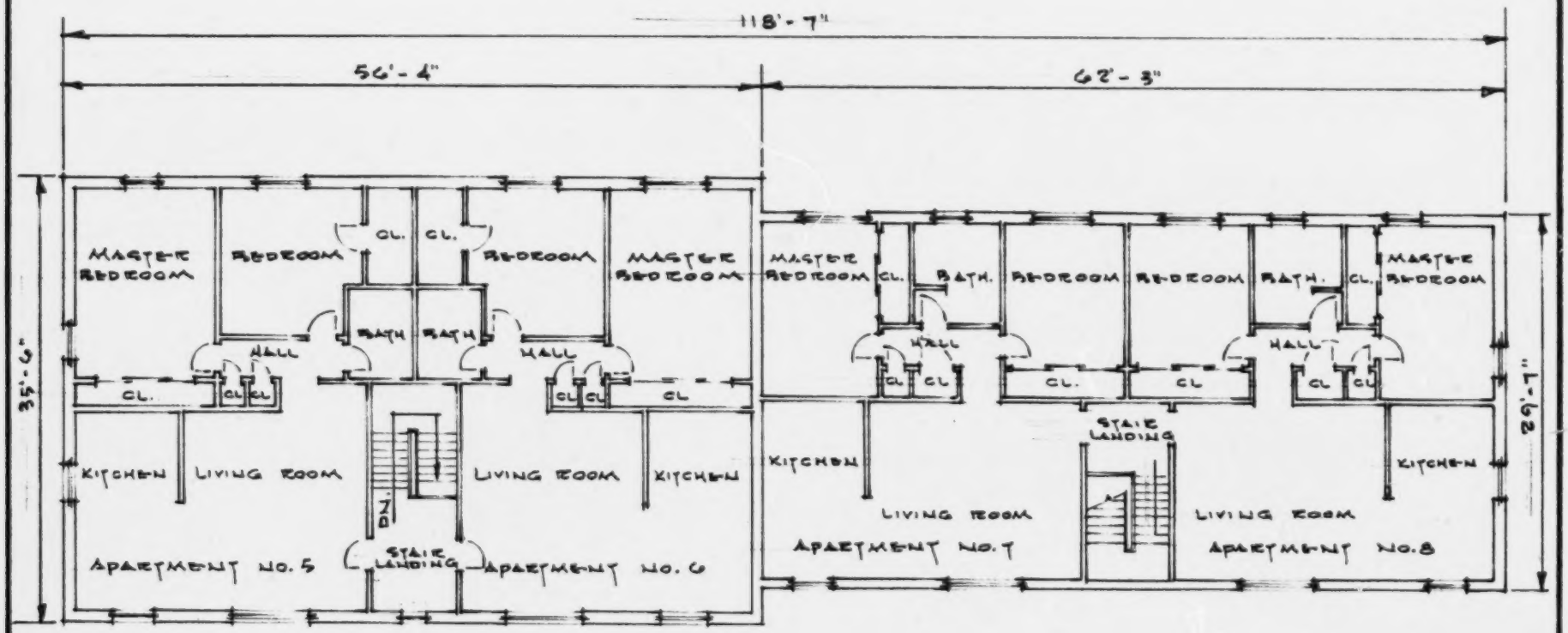
AREA - SIMILAR TO FIRST FLOOR PLAN



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SECOND FLOOR PLAN

0 5 10 15 20 25

SCALE IN FEET

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UNIVERSITY OF ROCHESTER
GRADUATE STUDENT HOUSING
ROCHESTER NEW YORK

12

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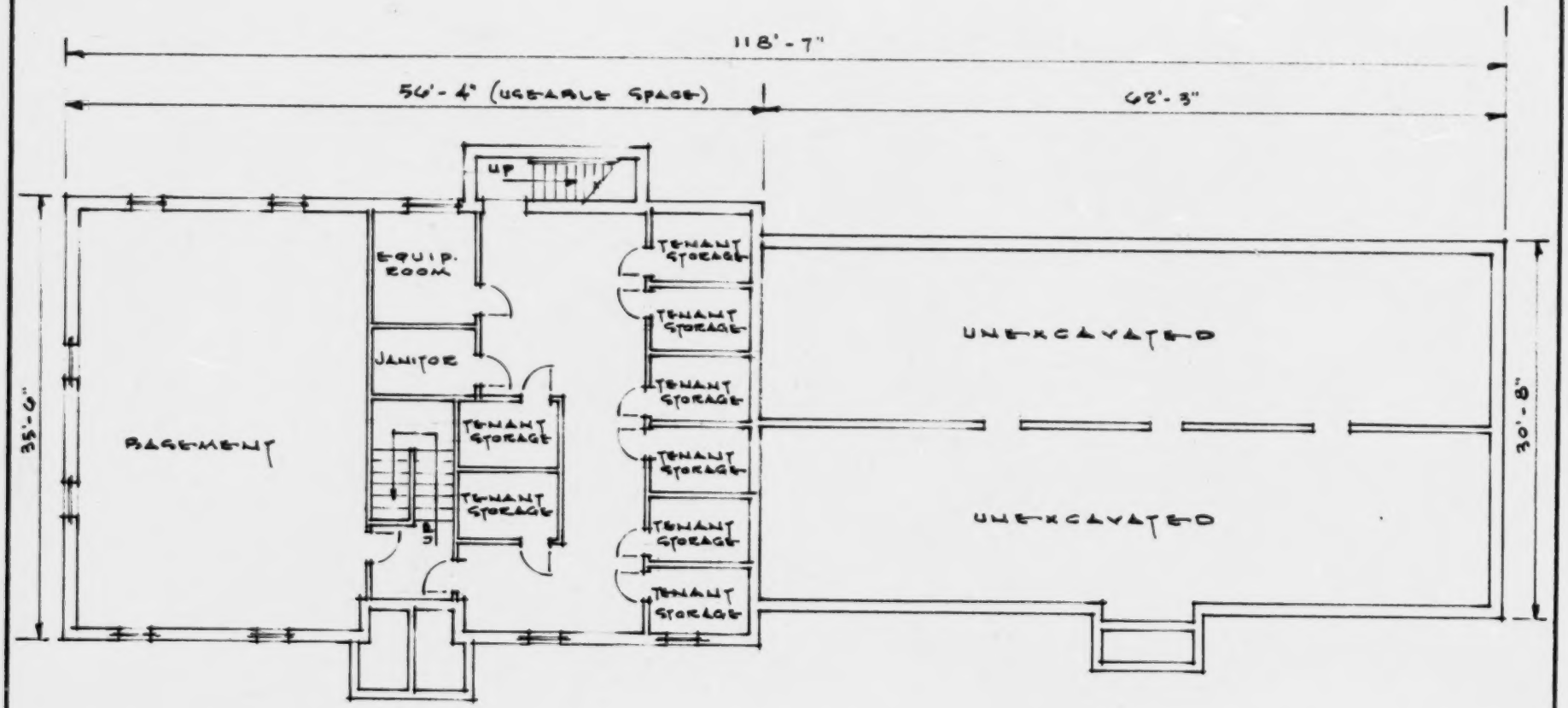
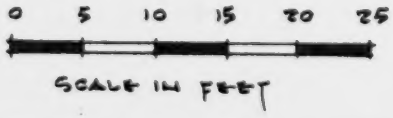
USEABLE SPACE - 1998 SQ. FT.
THIS INCLUDES 8 TENANT
STORAGE AREAS OF 48 SQ. FT. EACH.



BASEMENT PLAN



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GRADUATE STUDENT HOUSING
ROCHESTER NEW YORK

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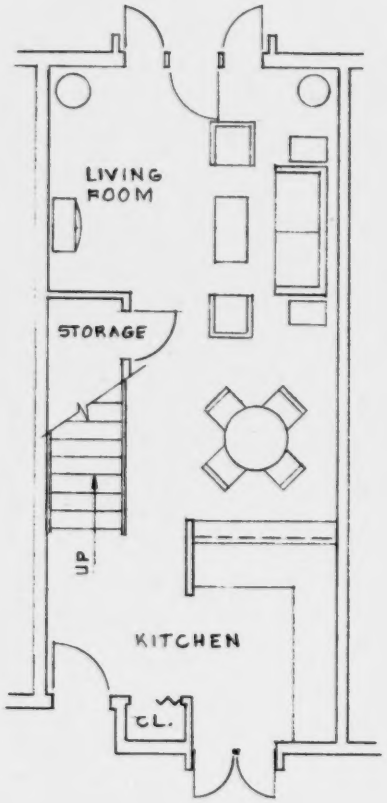
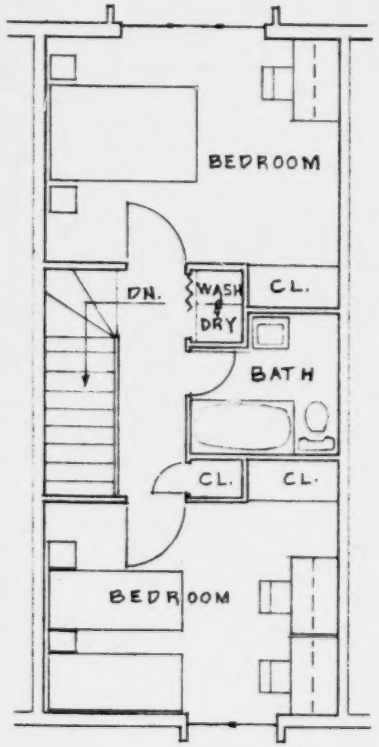


FIRST FLOOR PLAN

0 2 4 6 8 10 12



SECOND FLOOR PLAN

DORMITORY AUTHORITY of the STATE of NEW YORK
PROPOSED TWO-BEDROOM UNIT
MARRIED STUDENT HOUSING
S.U.N.Y. at ALBANY
E.D. STONE & ASSOC. - ARCH
OCT. 1970

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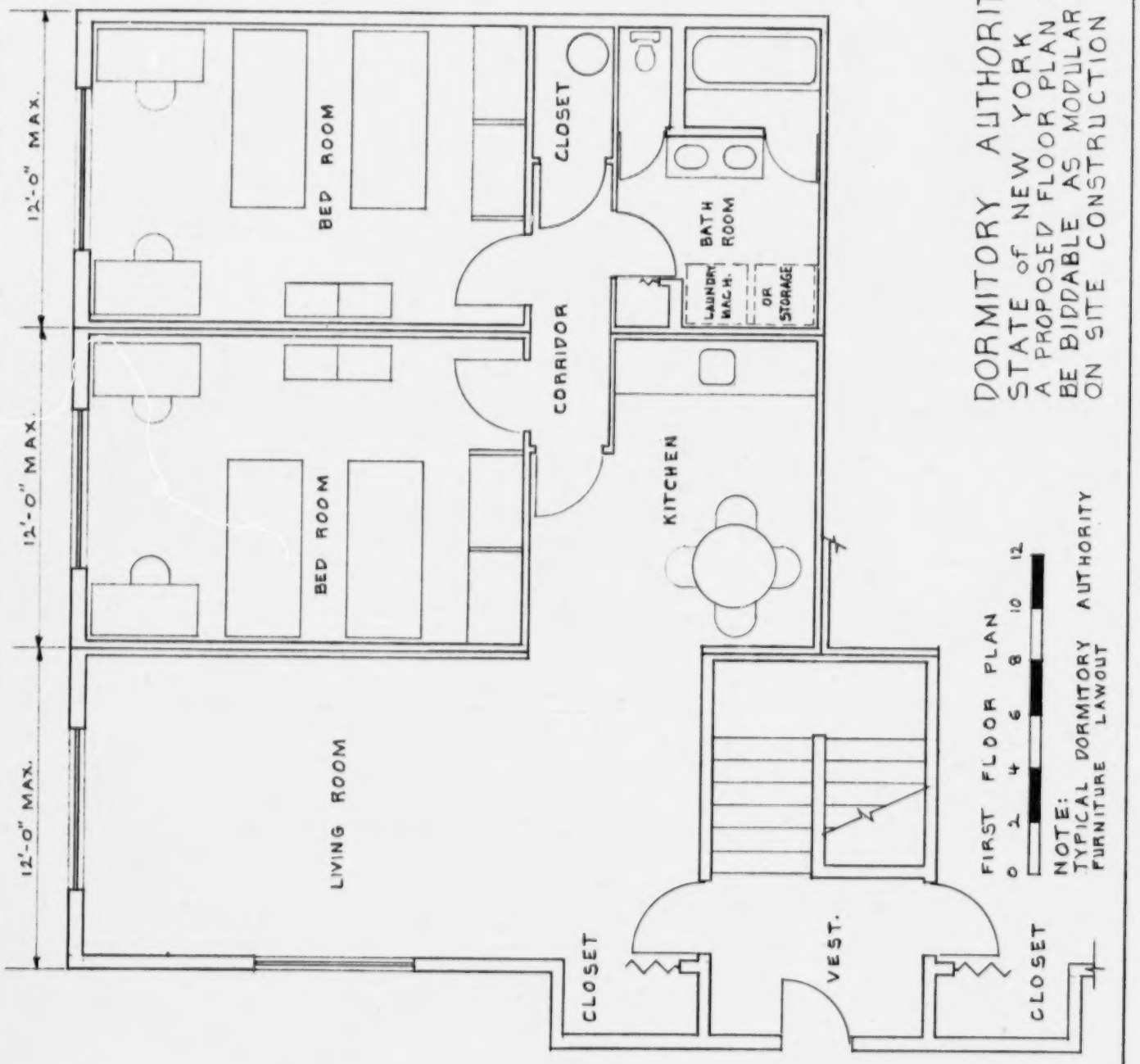

DORMITORY AUTHORITY of the STATE of NEW YORK
A PROPOSED FLOOR PLAN WHICH COULD BE BIDDABLE AS MODULAR, PREFAB. OR ON SITE CONSTRUCTION
DEC. 1970

FIRST FLOOR PLAN
0 2 4 6 8 10 12

NOTE:
TYPICAL DORMITORY AUTHORITY FURNITURE LAYOUT

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COMPARATIVE COSTS OF STANDARD DORMITORIES

In addition to the students' wishes for more gracious living, compelling financial reasons require an alternative to standard brick, concrete and steel dormitories. The typical residence hall should continue but it can no longer be the only answer to student living facilities.

The trend seems well established that some students on almost every campus need the option of another living style. At the same time, the institutions can get much needed financial relief by building less costly apartment type facilities which will average out their student residence costs at a more reasonable level.

Less than ten years ago the average straightforward safe, but plain dormitory could be built for approximately $5,000.00 per student. The accompanying dining hall space usually averaged $2500.00 per seat, or $1,250.00 per student. In spite of subsequent economies in space and design, these costs have risen sharply, especially in the last two years, so that sometimes the cost per student figures seem almost prohibitive.

To illustrate this disturbing escalation, we list below the figures for recently bid Dormitory Authority Projects for standard type dormitories.

Bid Date	State University	Building Constr. Cost Per Sq Ft.	Per Student
10/23/69	Agricultural & Technical College at Cobleskill, N.Y.	$36.47	$ 8,280.
5/6/70	Of New York -Amherst College,Buffalo	40.20	9,911.
9/30/70	College at Purchase, N.Y.	36.21	8,561.
8/27/70	Of New York -Amherst College,Buffalo	34.41	8,150.
8/13/70	College at Oneonta	29.27	6,991.
12/9/70	Of New York -Amherst College,Buffalo	40.54	10,165

It should be noted that the above figures are based on the bid for the construction of the buildings and do not include the cost of architects and other fees, site and utility work, contingencies and the many other peripheral costs needed to bring the project to completion. Furthermore, to get the true and final cost of housing a student in regular dormitories, the cost of dining halls at $4,000 per seat or $2,000 per student must be included. As indicated earlier, this dining hall cost will be lessened or even eliminated in apartment type housing.

On the pages which follow we present copies of the bid summaries of the projects listed above so as to provide all of the details of the cost analysis.

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DORMITORY AUTHORITY OF THE STATE OF NEW YORK
NORMANSKILL BOULEVARD ELSMERE, NEW YORK

October 28, 1969

BID SUMMARY

STAGE XIII DORMITORY, DINING HALL WITH FOOD LABORATORIES
SITE WORK - STATE UNIVERSITY AGRICULTURAL AND TECHNICAL COLLEGE AT COBLESKILL

Bid Opening - 2:30 P.M. - October 23, 1969

No. of Students Dormitory -	1,034	No. of Seats Dining Hall -	500
No. of Sq. Ft. Dormitory -	234,735	No. of Sq. Ft. Dining Hall -	43,612
No. of Cu. Ft. Dormitory -	2,292,884	No. of Cu. Ft. Dining Hall -	592,996
Gross Sq. Ft. Per Student -	227.01	Gross Sq. Ft. Per Seat Dining Hall & Food Lab. -	87.22

I. General Construction (Murray Walter, Inc., Binghamton, New York)			
A. Base Bid			$12,175,000.00
B. Wardrobes (1,034 @ $75.00 Each)			77,550.00
			$12,252,550.00
II. Budget			
A. Dormitories		$6,367,000.00	
Abnormal Foundations		304,000.00	
			$6,671,000.00
B. Dining Hall		$1,744,000.00	
Abnormal Foundations		55,000.00	
Air Condition Food Lab. Spaces		88,000.00	
Additional Equip. in Food Lab.		57,000.00	
Waste Handling System		30,000.00	
Extra Storage Space		40,000.00	
Market Abnormality		96,000.00	
			2,110,000.00
C. Site Work			792,000.00
Total Budget			$9,573,000.00
III. Allocation of Bid to Dormitory Project			
$\frac{\$6,671,000}{\$9,573,000}$ x $12,175,000 =		$8,484,000	
Cost of Wardrobes (1,034 @ $75.00 Ea.)		77,550	
			$8,561,550.00
Cost Analysis:			
A. Sq. Ft. Cost	$\frac{\$8,561,550}{234,735}$ =		$36.47

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Bid Summary
Stage XIII Dorm., D.H. with Food Lab., Site Work
SUA&TC at Cobleskill
Page #2

III. Allocation of Bid to Dormitory Project (Cont'd)

B. Cu. Ft. Cost $\frac{\$8,561,550}{2,292,884}$ = $3.73

C. Cost Per Student $\frac{\$8,561,550}{1,034}$ = $8,280.00

Note: The above figures include $387,000 for abnormal foundations.

IV. Allocation of Bid to the Dining Hall and Food Laboratories

A. Dining Hall

$\frac{\$1,401,000}{9,573,000}$ x $12,175,000 = $1,782,000.00

B. Food Laboratories

$\frac{\$709,000}{9,573,000}$ x $12,175,000 = 902,000.00

C. Total Dining Hall and Food Laboratories $2,684,000.00

Cost Analysis:

A. Sq. Ft. Cost $\frac{\$2,684,000}{43,612}$ = $61.54

B. Cu. Ft. Cost $\frac{\$2,684,000}{592,996}$ = $4.53

C. Cost Per Student (Incl.Food Lab.) $\frac{\$2,684,000}{500}$ = $5,368.00

D. Cost Per Student (Din.Hall Only) $\frac{\$1,782,000}{500}$ = $3,564.00

Note: The figures above include $452,000 for abnormal foundations, extra air conditioning, waste handling system, extra storage space and Food Lab. equipment.

V. Allocation of Bid to Site Project

$\frac{\$792,000}{\$9,573,000}$ X $12,175,000 = $1,007,000.00

VI. Contractor's Informative Prices:

1.	Substitute medium duty for heavy duty hardware		No Change
2.	Add Sound System for Dining Hall	ADD	$9,000.00
3.	Add Exterior Recreation Equipment	ADD	8,000.00
4.	Cast-Iron Stair Treads in lieu of Rubber	DEDUCT	3,800.00

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VI. Contractor's Informative Prices (Cont'd):

5.	Metal Toilet Partitions and Shower Stalls in lieu of marble		NO BID
6.	Delete Electrial Ground Fault Protector	DEDUCT	$ 2,000.00
7.	Plexipave for Elevated Walks, Decks and Bridge Surfaces in lieu of concrete		NO BID
8.	Asphaltic Insulating Thermal Concrete in lieu of tapered foam glass	DEDUCT	20,000.00
9.	T140 Deck Water-Proof Membrane in lieu of Membrane Water Proofing	ADD	27,000.00

VII. Cost Data - Alfred XII & XIII and Stony Brook XII Projects

Project	Bid Date	Contract	Beds	Cost/Student	Seats	Cost/Seat
Stony Brook XII	7/30/68	$7,796,680	1,024	$5,921.45	455	$2,338.63
Alfred XII & XIII	12/20/68	7,886,980	1,014	5,782.98	500	2,850.23

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DORMITORY AUTHORITY OF THE STATE OF NEW YORK
NORMANSKILL BOULEVARD ELSMERE, NEW YORK

May 7, 1970

BID SUMMARY

DORMITORY & DINING HALL PROJECTS
COLLEGES A & B - I. M. PEI PROJECT
STATE UNIVERSITY OF NEW YORK AT BUFFALO (AMHERST CAMPUS)

Bid Opening - 2:30 P.M. - May 6, 1970

Dormitory, Stage IX		Dining Hall, Stage IX	
No. of Students	- 828	No. of Seats	- 400
No. of Sq.Ft.	- 204,344	No. of Sq.Ft.	- 27,910
No. of Cu.Ft.	- 2,268,000	No. of Cu.Ft.	- 373,000
Gross Sq.Ft./Bed	- 246.79	Gross Sq.Ft./Seat	- 69.77

I.	General Construction (John W. Cowper Co., Inc.)	
	A. Base Bid	$11,345,000.00
	B. Wardrobes (828 x $75.00)	62,100.00
	C. Base Bid Plus Wardrobes	$11,407,100.00
II.	Project Budget	
	A. Dormitory	$ 6,149,000.00
	B. Dining Hall	1,279,000.00
	C. Site Work	1,113,000.00
	D. Project Budget - Total	$ 8,541,000.00
III.	Architect's Estimate	
	A. Dormitory	$ 7,656,675.00
	B. Dining Hall	1,700,325.00
	C. Site Work	1,200,000.00
	D. Total	$10,557,000.00
IV.	Breakdown of Bid (By Formula)	
	A. Dormitory	
	1. $\frac{\$6,086,900}{\$8,478,900}$ x $11,345,000 =	$ 8,144,439.00
	Cost of Wardrobes	62,100.00
	Cost of Dormitory	$ 8,206,539.00
	a. Cost Per Student $\frac{\$8,206,539}{828}$ =	$9,911.28
	b. Cost Per Sq. Ft. $\frac{\$8,206,539}{204,344}$ =	$ 40.20
	c. Cost Per Cu. Ft. $\frac{\$8,206,539}{2,268,000}$ =	$3.62

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IV. Breakdown of Bid (By Formula) - Cont'd

B. Dining Hall

1. $\frac{\$1,279,000}{\$8,478,900} \times \$11,345,000 =$ $1,711,337.00

a. Cost Per Seat $\frac{\$1,711,337}{400} =$ $4,278.34

b. Cost Per Sq.Ft. $\frac{\$1,711,337}{27,910} =$ $ 61.30

c. Cost Per Cu.Ft. $\frac{\$1,711,337}{373,000} =$ $4.60

C. Site Work

1. $\frac{\$1,113,000}{\$8,478,900} \times \$11,345,000 =$ $1,489,224.00

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DORMITORY AUTHORITY OF THE STATE OF NEW YORK
NORMANSKILL BOULEVARD ELSMERE, NEW YORK

October 2, 1970

BID SUMMARY

DORMITORY & DINING HALL PROJECT, COMPLEX "A" - STAGE XIV
STATE UNIVERSITY COLLEGE AT PURCHASE

Bid Opening - 2:30 P.M. - September 30, 1970

	Dormitory	Dining Hall
No. of Students	824	400
Sq. Ft. Area	207,500**	28,440*
Gross Sq.Ft./Student	251.82**	71.10*

**Includes 15.39 Sq.Ft. per Student for Academic Spaces
*Includes 17.00 Sq.Ft. per Student for Activity Spaces

1. General Construction (Joseph L. Muscarelle, Inc., Maywood, N.J.)

A. Base Bid	$10,564,000.00
B. Wardrobes (824 x $75.00)	61,800.00
C. Base Bid, plus Wardrobes	$10,625,800.00

2. Project Budget

A. Dormitory	$ 6,254,000.00
B. Academic Area	543,000.00
C. Dining Hall	1,344,000.00
D. Student Activity Spaces	288,000.00
E. Site Work	1,019,000.00
F. Total Budget	$9,448,000.00

3. Architect's Estimate

A. Dormitory	$6,263,000.00
B. Academic Spaces	534,000.00
C. Dining Hall	1,349,000.00
D. Student Activities	283,000.00
E. Site Work	1,019,000.00
F. Total Estimate	$9,448,000.00

4. Breakdown of Bid (By Formula)

A. Dormitory - $\frac{\$6,254,000}{\$9,448,000} \times \$10,564,000 =$ $6,992,700.00

Plus Wardrobes 61,800.00
Cost of Dormitory $7,054,500.00

1. Cost Per Student - $\frac{\$7,054,500}{824} =$ $8,561.29

2. Cost Per Sq.Ft. - $\frac{\$7,054,500}{194,817} =$ $36.21

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4. Breakdown of Bid (Cont'd)

B. Academic Space - $\frac{\$543,000}{\$9,448,000}$ x \$10,564,000 = \$607,100.00

1. Cost Per Student - $\frac{\$607,100}{824}$ = \$736.77

2. Cost Per Sq. Ft. - $\frac{\$607,100}{12,683}$ = \$ 47.87

C. Dining Hall - $\frac{\$1,344,000}{\$9,448,000}$ x \$10,564,000 = \$1,502,800.00

1. Cost Per Student - $\frac{\$1,502,800}{400}$ = \$3,757.00

2. Cost Per Sq.Ft. - $\frac{\$1,502,800}{21,640}$ = \$69.45

D. Student Activities - $\frac{\$288,000}{\$9,448,000}$ x \$10,564,000 = \$322,000.00

1. Cost Per Student - $\frac{\$322,000}{824}$ = \$390.78

2. Cost Per Sq. Ft. - $\frac{\$322,000}{6,800}$ = \$47.35

E. Site Work - $\frac{\$1,019,000}{\$9,448,000}$ x \$10,564,000 = \$1,139,400.00

5. Dormitory Estimates and Costs include Wardrobes and abnormal foundations. Dining Hall Estimates and Costs include Food Service Equipment and abnormal foundations.

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DORMITORY AUTHORITY OF THE STATE OF NEW YORK
NORMANSKILL BOULEVARD ELSMERE, NEW YORK

September 1, 1970

DORMITORY & DINING HALL PROJECT, STAGE XI
COLLEGES B & E, PHASE I - AMHERST CAMPUS
STATE UNIVERSITY OF NEW YORK AT BUFFALO

Bid Opening - 2:30 P.M. - August 27, 1970

	Dormitory	Dining Hall
No. of Students	922	650
Sq. Ft. Area	218,340	29,855
Gross Sq.Ft./Student	237	45.93

1. General Construction (Albert Elia Bldg. Co., Inc.)

A. Base Bid	$11,860,000.00
B. Wardrobes (922 x $75.00)	69,150.00
C. Base Bid, Plus Wardrobes	$11,929,150.00

2. Project Budget

A. Instructional Area	$1,044,000.00
B. Student Activities	1,125,000.00
C. Dormitories	8,153,000.00*
D. Dining Hall	2,297,000.00
E. Site Work	328,000.00
F. Total Budget	$12,947,000.00*

*Includes cost of Wardrobes ($69,150.00)

3. Architect's Estimate

A. Instructional Area	$1,040,000.00
B. Student Activities	1,120,000.00
C. Dormitories	8,150,000.00
D. Dining Hall	2,187,300.00
E. Site Work	320,912.00
F. Total Estimate	$12,818,212.00

4. Breakdown of Bid (By Formula)

A. Instructional Area - $\frac{\$1,044,000}{\$12,877,850}$ x $11,860,000 = $ 961,480.00

(1) Cost Per Student - $\frac{\$961,480}{922}$ = 1,042.82

(2) Cost Per Sq. Ft. - $\frac{\$961,480}{19,974}$ = 48.14

B. Student Activities - $\frac{\$1,125,000}{\$12,877,850}$ x $11,860,000 = $1,036,080.00

(1) Cost Per Student - $\frac{\$1,036,080}{922}$ = 1,123.73

(2) Cost Per Sq. Ft. - $\frac{\$1,036,080}{26,693}$ = 38.81

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Dorm. & D.H. Project, Stage XI
Colleges B&E, Phase I, Amherst Campus
SUNY at Buffalo - 8/27/70
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4. Breakdown of Bid (By Formula) - Cont'd

C. Dormitories - $\frac{\$8,083,850}{\$12,877,850}$ x $11,860,000 = $7,444,920.00

Cost of Wardrobes 69,150.00
Cost of Dormitories $7,514,070.00

(1) Cost Per Student - $\frac{\$7,514,070}{922}$ = 8,149.75

(2) Cost Per Sq. Ft. - $\frac{\$7,514,070}{218,340}$ = 34.41

D. Dining Hall - $\frac{\$2,297,000}{\$12,877,850}$ x $11,860,000 = $2,115,445.00

(1) Cost Per Seat - $\frac{\$2,115,445}{650}$ = 3,254.53

(2) Cost Per Sq.Ft. - $\frac{\$2,115,445}{29,855}$ = 70.86

E. Site Work - $\frac{\$328,000}{\$12,877,850}$ x $11,860,000 = $ 302,075.00

5. Recapitulation

	SUCF Budget	Adjusted Bid	Amount Under Budget
A. Instructional Area	$1,044,000.00	$ 961,480.00	$ 82,520.00
B. Student Activities	1,125,000.00	1,036,080.00	88,920.00
C. Dormitories	8,153,000.00*	7,514,070.00*	638,930.00
D. Dining Hall	2,297,000.00	2,115,445.00	181,555.00
E. Site Work	328,000.00	302,075.00	25,925.00
	$12,947,000.00*	$11,929,150.00*	$1,017,850.00

*Includes Cost of Wardrobes (922 x $75.00 = $69,150.00)

6. Comparative Cost - Previous Project

	Dorm./Bed	Dorm./Sq.Ft.	D.H./Seat	D.H./Sq.Ft.
SUNY at Buffalo - Stage IX (Amherst Campus)	$9,911.28	$40.20	$4,278.34	$61.30

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DORMITORY AUTHORITY OF THE STATE OF NEW YORK
NORMANSKILL BOULEVARD ELSMERE, NEW YORK

August 21, 1970

BID SUMMARY

DORMITORY & DINING HALL PROJECT, STAGE XV
STATE UNIVERSITY COLLEGE AT ONEONTA

Bid Opening - 2:30 P.M. - August 13, 1970

Dormitories		Dining Hall	
No. of Sq.Ft.	- 107,960	No. of Sq.Ft.	- 31,256
No. of Cu.Ft.	- 971,640	No. of Cu.Ft.	- 312,560
No. of Students	- 452	No. of Seats	- 500
Gross Sq.Ft./ Student	- 238.8	Gross Sq.Ft./Seat	- 62.5

I. General Contract

A. Murray Walter, Inc., Binghamton, New York

(1) Base Bid	$5,096,000.00
(2) Wardrobes (452 x $75.00)	33,900.00
Total Project	$5,129,900.00

II. Project Budget

(A) Dormitories	$3,053,000.00
(B) Dining Hall	1,426,000.00
(C) Site Work	476,000.00
(D) Project Budget - Total	$4,955,000.00

III. Architect's Estimate

(A) Dormitories	$2,929,000.00
(B) Dining Hall	1,543,000.00
(C) Site Work	476,000.00
(D) Total Estimate	$4,948,000.00

IV. Breakdown of Bid (By Formula)

A. Dormitories

1. $\frac{\$3,019,100}{\$4,921,100} \times \$5,096,000 =$ $3,126,396.00

Cost of Wardrobes	33,900.00
Total Dormitory Cost	$3,160,296.00

a. Cost Per Sq. Ft. - $\frac{\$3,160,296}{107,960} =$ $29.27

b. Cost Per Cu. Ft. - $\frac{\$3,160,296}{971,640} =$ $ 3.25

c. Cost Per Student - $\frac{\$3,160,296}{452} =$ $6,991.80

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IV. Breakdown of Bid (By Formula) Cont'd

B. Dining Hall

1. $\frac{\$1,426,000}{\$4,921,100} \times \$5,096,000 =$ $1,476,667.00

a. Cost Per Sq. Ft. - $\frac{\$1,476,667}{31,256} =$ $47.24

b. Cost Per Cu. Ft. - $\frac{\$1,476,667}{312,560} =$ $ 4.72

c. Cost Per Seat - $\frac{\$1,476,667}{500} =$ $2,953.33

C. Site Work

1. $\frac{\$476,000}{\$4,921,100} \times \$5,096,000 =$ $ 492,765.69

V. Cost Data Previous Projects

Project	Bid Date	Contract	Beds	Cost/Bed	Seats	Cost/Seat
Stages IX & XI	7/28/66	$4,993,000.00	618	$5,219.00	528	$2,165.00
Stage XIII	10/19/67	1,336,600.00	228	5,529.00		

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DORMITORY AUTHORITY OF THE STATE OF NEW YORK
NORMANSKILL BOULEVARD ELSMERE, NEW YORK

December 10, 1970

DORMITORY & DINING HALL PROJECT, STAGE XI
COLLEGES A & D, PHASE II-A - AMHERST COLLEGE
STATE UNIVERSITY OF NEW YORK AT BUFFALO

BID OPENING - 2.30 P.M. - December 9, 1970

	Dormitory	Dining Hall
No. of Students	878	600
Sq. Ft. Area	220,144	29,386
Gross Sq. Ft./Student	250.73	48.97

1. General Construction (John W. Cowper Co., Inc.)

A. Base Bid	$ 13,997,000.00
B. Wardrobes (878 x $75.00)	65,850.00
C. Base Bid, plus wardrobes	$ 14,062,850.00

2. Project Budget

A. Instructional Area	$ 884,620.00
B. Student Activities	1,257,220.00
C. Dormitories	8,433,380.00
D. Dining Hall	2,460,780.00
E. Site Work	250,000.00
F. Total Budget	$ 13,286,000.00

3. Architect's Estimate

A. Instructional Area	$ 1,051,400.00
B. Student Activities	1,145,500.00
C. Dormitories	8,490,000.00
D. Dining Hall	2,252,200.00
E. Site Work	340,000.00
F. Total Estimate	$ 13,279,100.00

4. Breakdown of Bid (By Formula)

A. Instructional Area $\frac{\$\ 884,620.00}{\$13,220,150.00}$ X $13,997,000.00 = $ 936,600.00

(1) Cost per Student $\frac{936,600}{878}$ = $ 1,066.74

(2) Cost per Sq. Ft. $\frac{936,600}{18,138}$ = $ 51.64

B. Student Activities $\frac{\$1,257,220.00}{13,220,150.00}$ X $13,997,000.00 = $ 1, 331,100.00

(1) Cost per Student $\frac{1,331,100}{878}$ = $ 1,516.06

(2) Cost per Sq. Ft. $\frac{1,331,100}{25,385}$ = $ 52.44

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4. Breakdown of Bid (By Formula) (Continued)

C. Dormitories $\frac{\$8,367,530}{\$13,220,150}$ X $13,997,000.00 = $ 8,859,200.00

Cost of Wardrobes 65,850.00
Cost of Dormitories $ 8,925,050.00

(1) Cost per Student $\frac{8,925,050}{878}$ = $ 10,165.21

(2) Cost per Sq. Ft. $\frac{8,925,050}{220,144}$ = $ 40.54

D. Dining Hall $\frac{\$ 2,460,780.00}{\$13,220,150.00}$ X $13,997,000.00 = $ 2,605,400.00

(1) Cost per Seat $\frac{2,605,400}{600}$ = $ 4,342.33

(2) Cost per Sq. Ft. $\frac{2,605,400}{29,386}$ = $ 88.66

E. Site Work $\frac{\$ 250,000.00}{\$13,220,150.00}$ X $13,997,000.00 = $ 264,700.00

5. Recapitulation

	SUCF Budget	Adjusted Bid	Amount Over Budget
A. Instructional Area	$ 884,620.00	$ 936,600.00	$ 51,980.00
B. Student Activities	1,257,220.00	1,331,100.00	73,880.00
C. Dormitories	8,433,380.00	8,925,050.00	491,670.00
D. Dining Hall	2,460,780.00	2,605,400.00	144,620.00
E. Site Work	250,000.00	264,700.00	14,700.00
	$ 13,286,000.00	$14,062,850.00	$ 776,850.00

6. Comparative Cost - Previous Project

SUNY at Buffalo - Colleges B & E - Stage XI, Phase I (Amherst Campus)

Dorm./Bed	Dorm./Sq. Ft.	D.H./Seat	D.H./Sq. Ft.
$8,149.75	$ 34.41	$3,254.53	$70.86

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DORMITORY AUTHORITY OF THE STATE OF NEW YORK
NORMANSKILL BOULEVARD ELSMERE, NEW YORK

December 10, 1970

DORMITORY & DINING HALL PROJECTS - STAGE XI
COLLEGES A & D - PHASE II-A
STATE UNIVERSITY OF NEW YORK AT BUFFALO (AMHERST CAMPUS)

Bid Opening - 2.30 P.M. - December 9, 1970

INFORMATIVE PRICES

No. 1	-	Dull chrome, US26D Hardware Finish in lieu of finish specified	No Bid	
No. 2	-	Omit Kitchenette Units	Deduct	$22,000.00
No. 3	-	Substitute acoustical tile ceiling in lieu of acoustical plaster	Deduct	$ 1,100.00
No. 4	-	Substitute floor mounted toilet partitions in lieu of ceiling hung	Deduct	$ 5,000.00
No. 5	-	Substitute quarry tile in lieu of brick pavers - Level 1	Deduct	$10,000.00
No. 6	-	Omit movable room dividers	Deduct	$50,000.00
No. 7	-	Omit air conditioning - buildings No. 4	Deduct	$35,000.00
No. 8	-	Omit insulation on branch duct work	Deduct	$ 2,000.00
No. 9	-	Omit all student living area drinking fountains	Deduct	$ 8,000.00
No. 10	-	Omit all clocks	Deduct	$ 7,500.00
No. 11	-	Omit TV Antenna system	Deduct	$ 6,000.00
No. 12	-	Omit conduit for audio-video system	Deduct	$ 6,000.00
No. 13	-	Omit Dining area sound system	Deduct	$ 4,000.00
No. 14	-	Substitute quarry tile walls in kitchen, dishwashing and scullery areas	Add	$10,600.00
No. 15	-	Substitute ceramic tile walls in kitchen, dishwashing and scullery areas	Add	$ 8,000.00
No. 16	-	Omission of temporary water line responsibility and costs of water consumed	Deduct	$ 500.00

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A SAMPLE STUDENT APARTMENT PROGRAM

The following is a sample program for the building of apartment units. It can serve as a descriptive outline of apartment housing for single college and university students.

PLANNING APPROACH

The program concept for this project is intended to permit utilization of a variety of available building techniques or approaches to produce housing either with the conventional approach or with an option to use prefabricated components that will shorten construction time and reduce costs.

Construction documents should be developed to encourage bidding by contractors active in this segment of the multifamily housing industry. Participation of such contractors in the design process to incorporate industry standards and cost saving methods is encouraged. Contract general conditions should be simplibied to avoid requirements that may discourage competition of small contractors. Consideration should be given to subdividing the project into smaller contracts to permit competition by typical "housing" contractors.

The facility program is a guideline definition of the minimum level of performance expected. Mandatory code regulations must be follwed and stated planning objectives and principles should be adhered to. It is intended that the program will present basis for detailed design and selection of materials.

Design solutions should be developed to accept the application of modular composnent building units or prefabricated packages to the extent that competitive bidding requirements are maintained and flexibility of choice is achieved. The use of components should not preclude the economics and application of conventional building techniques and should insure that the cost advantages of both approaches can be realized.

Proposals for building with components must provide for securing compatible labor agreements and must resolve all transportation and logistical problems that may introduce additional costs and restrictions to the project after bidding. Dimensional and load restrictons for transportation vehicles must be within State and local requirements and all special permits or arrangements must be obtained by the supplier. Proprietary design must be avoided and design solutions hould remain as straight forward and adaptable as possible to encourage maximum competition.

Careful consideration should be given to local market conditions and product availability to minimize cost and time escalation.

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SAMPLE PROGRAM

PURPOSE OF PROGRAM

Student housing is to be planned and administered in a manner to encourage high levels of occupancy and to encourage better maintenance of the buildings. To do this effectively, the housing must be planned to accommodate user needs and requirements. This program for apartment type housing has been developed to provide greater variety in response to changes in user preferences.

The purpose of this program is to present the general planning and performance criteria required for apartment type housing.

It is intended that the performance requirements will approximate the construction standards generally employed in current commercial and speculative low rise apartment projects, and will encourage participation of the housing construction industry in the effort to provide residential living accommodations at a cost that can be supported by the resident's ability to pay. This objective is reflected in the budget for the project and makes it inviolate.

COMPREHENSIVE CAMPUS PLAN - PROGRAM STATEMENT

1. Building massing to conform to the Campus Plan.
2. Buildings shall complement the "Design Vocabulary" statement of the Campus Plan.
3. Utility connections to major utility trunk lines are to be made in accordance with the campus master plan.

SITE PLAN - PROGRAM STATEMENT

A Site Development Program Criteria Statement will be issued with the Site Program.

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SAMPLE PROGRAM

OCCUPANCY AND SPACE REQUIREMENTS

The following space requirements are intended as guidelines for the development of typical apartment layouts. Except for bedroom space, a 10% variation from given net areas is permitted. Within this limit consideration should be given to dimensional limitations of available building materials and the necessity to accommodate required equipment and furnishings.

OCCUPANCY

	Apartment Types			Total
	1 BR	2 BR	3 BR	
**Percentage distribution	25%	50%	25%	100%
Number of students	---	---	---	800
Students per unit:	2	4	6	
Number of units:	___	___	___	200

SPACE REQUIREMENTS (Net Area)

1.	Apartments			
	a. Living-Dining	200	240	260
	b. Kitchen	60	60	60
	c. Bedroom (main)	160	160	160
	d. Bedroom (second)	---	160	160
	e. Bedroom (third)	---	---	160
	f. Bathroom	A.R.	A.R.	A.R.
	g. Closets	26	42	58
	h. *Storage	(20)	(30)	(40)
	i. Entry and circulation	A.R.	A.R.	A.R.
Net Area per apartment		446	662	858
Net area (including storage)		466	692	898
Net area summary (sq. ft.)		___	___	___

*Storage requirements may be provided as separate storage rooms in apartments or remotely located as unit compartments or screened bins with provisions for access and security.

**The program percentage distribution is intended to provide an average of two (2) bedroom units with provisions for flexibility in use and occupancy. A 5% variation in percentage distribution will be allowed, however, if construction is staged, the ratio should be maintained in each major phase of housing units. Changes in area or distribution may not reduce the total number of students.

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SAMPLE PROGRAM

GENERAL REQUIREMENTS

Building Codes and Regulations

1. Buildings shall be in compliance with the requirements of the State Building Construction Code (Multiple Dwellings) and the Life Safety Code of the National Fire Protection Association.

2. Two per cent of the total occupancy is to meet the State University Construction Fund standard performance criteria for the physically handicapped and the National Standards Association.

OCCUPANCY

1. Occupancy will generally consist of undergraduate students (18-26 yrs. and graduate students (22 yrs. +).

2. Units may be occupied by students and/or faculty with or without children. One partner of married couples (generally female) may be assumed to be a non-student and may work part or full time.

PLANNING CRITERIA

1. Buildings are to be "low rise" walk-up units without extensive public corridors.

2. Studio apartments are specifically excluded.

3. Storage for personal effects should generally be provided within each apartment for greatest convenience and control of the occupants. Where grade conditions permit, basement or semi-basement areas may be utilized for storage with provisions for easy access and security control.

4. Design of exterior steps or open stair systems are to be designed so as not to be hazardous in inclement weather.

5. Garbage and refuse collection points should be provided and so arranged that they are convenient to each apartment, unobstrusive and readily accessible for pick-up. Units should be of the closed type, well screened from normal activity areas, and provided with a hose-bib. Methods of collection are to be in accordance with existing campus policy.

6. Layout of apartment types should permit easy conversion of one and three bedroom units into two bedroom units and vice versa by reassignment of a bedroom with minor relocation of partitions and doors.

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SAMPLE PROGRAM

GENERAL REQUIREMENTS

Construction Standards

1. Building materials, construction and equipment are to be equivalent to current residential standards generally consistent with, but not limited to the following descriptive list:

   a. Block foundations (concrete optional)
   b. Wood frame
   c. Commercial siding
   d. Vapor barrier and thermal insulation
   e. Asphalt shingles or standard bituminous roofing
   f. Prefinished panels or drywall partitions
   g. Resilient tile floors or carpeting (as carpet allowance)
   h. Residential quality kitchen cabinets and equipment
   i. Hollow-core interior wood doors and hollow metal exterior doors
   j. Standard windows with combination storm and screen windows

2. Design methods, building materials and installation are to comply with the requirements and recommendations of the following published standards or description:

Standard	Application
a. N L M A	Lumber grade mark
b. A.C.I. Code	Concrete
c. A.I.S.C. Manual	Structural Steel

3. Materials should be as maintenance free as possible.

4. Partition and Floor/Ceiling construction between dwelling units are to provide a fire resistance rating of 2 hrs. determined in accordance with the procedures outlined in ASTM Standard E 119, Fire Testing of Building Construction and Materials.

   Fire Walls between fire areas are to be of noncombustible construction in accordance with the building code.

5. Provide a fire detection and fire alarm system similar or compatible with existing campus system. Connection to campus system and/or Municipal Fire Alarm System as required.

   Automatic fire detectors are required in each sleeping room, kitchen, mechanical and storage room with audible alarm in each apartment unit.

6. Wall type mailboxes of standard size, metal construction with locks are to be provided in building entry and are to comply with U.S. Postal Department Standards. Provide wall slots in townhouses.

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SAMPLE PROGRAM

GENERAL REQUIREMENTS

Construction Standards (continued)

7. Provide drapery rods over each window, and venetial blinds in bedrooms. Bathroom windows should be glazed with obscurant material.

8. Minimum door widths: 3'-0" Exterior
   2'-6" Interior
   2'-4" Bathrooms
   2'-0" Closets

9. Where carpeting is approved for floor finishes, acoustical surface treatment and composition flooring may be omitted. An allowance for carpeting should be included within the Project estimate.

Services - Heating and Ventilating

1. Heating systems shall be designed and installed to provide for the distribution of heat to all habitable space including stairwells and other public space to replace heat loss requirements calculated in accordance with methods and heat loss coefficients of the ASHRAE "Guide".

2. Availability of primary energy source is identified in the project site program. Heating systems are to be selected based on economics of installation and operating costs.

3. Heating system should be designed to provide the following:

   a. Maintained inside temperature of 68° - 72° F.
   b. Space saving
   c. Quiet operation
   d. Elimination of cold spots and drafts
   e. Thermostatic control for each apartment
   f. Concealed piping where possible
   g. Insulation of all exposed piping
   h. Shut off valves for each apartment (wet systems)

4. Design, materials and installation of heating equipment are to comply with the requirements and recommendations of the following published standards:

   a. National Fire Protection Association
   b. National Board of Fire Underwriters*
   c. U.S.A. Standards Institute
   d. American Society of Mechanical Engineers
   e. Underwriters Laboratory

   *Name changed to American Insurance Association, December 1964.

5. Kitchens and interior bathrooms are to be mechanically ventilated in accordance with the building code.

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SAMPLE PROGRAM

GENERAL REQUIREMENTS

Services - Plumbing

1. Plumbing, fixture requirements to be in accordance with the State Building Code (Plumbing).

2. Plumbing fixtures to conform in quality and design to one of the following Commercial Standards:

   a. Vitreous China CS-20 (Water Closets)
   B. Porcelain enameled cast-iron CS-77 (Tubs and Lavatories)

   Preformed molded fiberglass tub and shower assemblies may be used.

3. Plumbing system and fixtures should be designed to provide the following:

   a. Freedom from water hammer and pipe rattling
   b. Insulation on thin wall and all hot water piping
   c. Caulking seal and escutcheons at all openings through floors or walls
   d. Quiet operations
   e. Ease of cleaning and repair
   f. Single lever faucets (recommended)
   g. Chromium plated brass fixture trim
   h. Sill faucets with inside shut off at convenient exterior locations

4. Direct - fired water heater to be Underwriters Laboratory or American Gas Association listed. Electric water heaters to conform with NEMA standards. Hot water recovery rate to be minimum of 180 GPH per HW demand unit.

5. Provide shut-off valve and drain for water supply system easily accessible for each living unit.

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SAMPLE PROGRAM

GENERAL REQUIREMENTS

Services - Electrical

1. Provide each living unit with electric service adequate to meet energy requirements for adequate illumination and efficient operation to all programmed appliances and equipment. Electric service will be from the campus distribution system and metered accordingly.

2. All electric work shall be in compliance with requirements of the National Electric Code. Specifications shall require contractor to have electric work inspected and, after completion, to furnish owner with a certificate of approval and compliance from the New York Board of Fire Underwriters.

3. Service entrance conductors and equipment to be adequate for computed loads plus spare circuits for future use. Include separate circuit for future electric air conditioner installation. Each living unit to have individual main disconnect and circuit breaker devices.

4. Provide grounded outlets and silent switches, generally following standards of the National Electric Code. Locate for flexible arrangements and use. Dimmer switches for dining area lighting are recommended.

5. Lighting levels should be adequate for study purposes. Fixtures should be simple and sturdy in design, of standard types which permit ready inter-changeability and replacement and easy re-lamping.

6. Provide a master antenna system, concealed from exterior view. Each living unit to have television antenna jacks, one in the living area and one in each sleeping room.

7. Conduit or other means should be provided for connection to future campus educational T.V. system.

8. Telephone service should be coordinated with College and Telephone Company having jurisdiction. Centrex or direct inward dialing telephone service is required.

9. Outdoor lighting should be provided for safety and should be as vandal-proof as possible where exposed to the public.

10. Provide a weatherproof convenience outlet on each exterior side of the building.

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SAMPLE PROGRAM

GENERAL REQUIREMENTS

Sonic Environment

1. Siting of buildings, plan configuration, materials and methods of construction should provide a high degree of acoustical privacy between living units, between living units and public and service spaces and between individual rooms used for study.

2. Acoustical control should be directed at suppression of sound at the source and reduction of sound transmission through partition, ceiling and floor construction. Insolation of mechanical noises and vibrations is required. The application of impact noise limitations to floor construction is strongly recommended. Acoustical control of impact noise is as important as control of air borne noise and must be equally considered in the overall design.

3. Sound transmission limitations shall be in accordance with the sound transmission class (STC) as determined by methods set forth in ASTM E90-66T and as follows:

   a. Partitions:

      (1) Between living units - Class 50
      (2) Other partitions - Class 45

   b. Floor and Ceilings - Class 50

   The above minimum standards are based on a low background or ambient noise level which may be expected in the academic community. Where consistent higher ambient noise levels occur that tend to "mask" noise created in the apartments a reduction in standards may be considered.

4. The use of construction assemblies which nearly meet the above standards may be permitted when an analysis of the ambient noise level of the campus or neighborhood and the design of the building and living units in respect to acoustic control would indicate an acceptable degree of auditory privacy.

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SAMPLE PROGRAM

PROGRAM REQUIREMENTS

LIVING-DINING ROOM

Functional Criteria

1. Orient living space toward private or rear side of apartment for maximum privacy. Direct sight lines into this space from other living units should be avoided.

2. Wall areas should permit flexible arrangement of furniture and space for hanging pictures.

3. Living space should provide for good circulation patterns with flexible furniture arrangements.

4. Provide potential space for temporary guest sleeping within living-dining room area.

5. Living space should have the capacity to accommodate study requirements programmed for the bedrooms. Planning should permit potential for assigning part of the living area as study space with appropriate provisions for lighting, outlets and furniture.

Environment Criteria

6. See General Requirements

7. Provide for:

   a. Acoustical control
   b. General lighting
   c. Adequate ventilation
   d. Adjustable overhead lighting for dining
   e. Future electric A.C. Unit

Equipment Requirements

8. Furnishings (Group III) will generally include:

a. Couch	(1)
b. Chairs	(2)
c. End Tables	(2)
d. Coffee Table	(1)
e. Dining Table with extension	(1)
f. Dining Chairs	(6)
g. Desk, bookshelf, file cabinet	(Optional)

   Consideration should be given to the probability that students may supply and improvise their own furnishings.

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SAMPLE PROGRAM

PROGRAM REQUIREMENTS

KITCHEN

Functional Criteria

1. Should be closely related to entrance and service facilities.

2. Should be utility type, open in feeling, arranged for efficient use and as maintenance free as possible. Control of view from living space is desirable.

3. Space for snack type eating other than the dining table is desirable.

4. Provide at least 10 lineal feet of 2 foot deep counter work space. Combined base and wall cabinet storage, with doors, should not be less than 50 cu. ft.

5. Counter tops should be able to withstand hot pots and non-staining, easy to clean, quiet to work on and easy to repair (scratches, etc.). Full height back spalshes of the same type of material are desirable.

6. Wall hung cabinets to be securely fastened to wall framing at frequent intervals to prevent sagging when fully loaded.

Environment Criteria

7. Exhaust and ventilation must be adequate to carry away cooking heat and odors.

8. Lighting should be located to avoid shadows over counter work surface.

Equipment and Requirements

9. Kitchen equipment (included in contract) should be brand name residential quality selected for easy maintenance, repair and service.

10. The following equipment is to be included in the contract:

    a. Single bowl stainless steel sink with lever handle faucet.
    b. Exhaust fan or hood ducted to outside.

11. Space and service connections are to be provided for the following equipment to be supplied by others.

    a. Three burner range and oven with variable control (220 volt).
    b. Combination, freezer/cold storage, self-defrosting refrigerator (10 cu. ft. in 1 and 2 bedroom apartment, and 12 cu. ft. in 3 bedroom apartment).
    c. Vertically stacked combination washer-dryer unit approximately 36" wide, (220 volt, hw/cw taps and drain).
    d. Small rechargeable fire extinguisher (surface mounted in kitchen cabinet).

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SAMPLE PROGRAM

PROGRAM REQUIREMENTS

BEDROOM (TYPICAL)

Functional Criteria

1. Room layout should be designed to permit flexible furniture arrangements with possibilities for creating individual study areas. Arrangements should provide freedom from roommates' direct field of vision while studying and spatial isolation when sleeping.

2. Study area should meet the following requirements:

   a. Privacy
   b. Good study lighting (natural & artificial)
   c. Ventilation
   d. Sound attenuation
   e. Desk and file space
   f. Book shelf and storage (8' minimum)
   g. Electrical and future educational T.V. outlets
   h. Tackboard

3. Provide at least a 3' width of 2' deep closet space for each student.

4. Arrange sleeping spaces to avoid disturbances from outside.

5. Windows should consider placement of desks and furniture.

Environment Criteria

6. Natural and artificial lighting and ventilation requirements to be in accordance with the State Building Code.

Service Requirements

7. Provide convenience outlets per code properly located for flexible room arrangement.

8. Provide wall switch at door to operate one (1) convenience outlet. No ceiling lights.

Equipment Requirements

9. Furnishings (not in contract) for each bedroom will generally include two (2) each of the following:

   a. Single bed with provision for bunking
   b. Chest of drawers
   c. Desk
   d. Student chair
   e. Bookcase and file (optional)

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SAMPLE PROGRAM

PROGRAM REQUIREMENT

BATHROOM

Functional Criteria

1. Locate bathroom near and on same level as bedrooms. Minimum size: 5'0" x 7'0".

2. Floor and wall finishes should be durable, water resistent and easily maintainable. Floor finish should be a monolithic sheet material. Monolithic materials should be as seamless as possible. Sealants used at wall and tub should not require short term maintenance.

3. Provide linen storage closet adjacent to bathroom.

Environment Criteria

4. Provide a good general lighting and fluorescent lamp at lavatory.

5. Provide mechanical or window ventilation in accordance with the building code. Undercut entrance doors.

Service Requirements

6. Provide electric duplex outlet at lavatory.

EQUIPMENT REQUIREMENTS

7. Provide bathroom fixtures (in contract) as follows:

   a. Water closet (quiet tank type, wallhung suggested).
   b. Vanity with built-in lavatory. Provide two (2) lavatories in 3 bedroom units.
   c. Tub with shower head and non-slip surface. Provide additional shower stall in 3 bedroom units.

8. Provide bathroom accessories:

   a. Toilet paper holder
   b. Chrome rod and shower curtain (glass doors at tub specifically not allowed)
   c. Short snubbed hooks for towels and robes.
   d. Self-draining soap dishes
   e. 24" towel racks
   f. Medicine cabinet (16' W x 30" H x 4" D minimum size, good quality mirror).
   g. Grab bars in showers and tubs.

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SAMPLE PROGRAM

PROGRAM REQUIREMENTS

Entry, Circulation, Storage and Utility - Design Criteria

Functional Criteria

1. Provide easy access to entrance without complicated traffic patterns that create confusion for guests and little children. Internal circulation to kitchen, utility space, living space and bath should be direct and cross traffic patterns should be avoided.

2. Extensive common halls and stair systems should be avoided. They require durable materials, are high on maintenance, are limited in use and can be a point of aggravation.

3. Provide a separate, well defined interior entrance or foyer with related guest closet. (2'0 deep by 3'0 wide minimum). Floor should be easily maintained and resistive to material "tracked" into the unit from the exterior.

4. A utility space of minimum area may be provided for housing "package" heating equipment, utility services and general storage. Utility space should relate to kitchen and entrance.

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SAMPLE PROGRAM

APARTMENT UNITS

Site Development - Program Criteria

I. General

a. The complex should be residential in size and scale.

b. A sequence of spaces from public to private is required to insure the privacy of the living unit.

c. Elements should be designed for flexibility and multi-use.

II. Facilities

a. Private Outdoor Living Area (For individual units or groups of units)

This area should function as a multi-use area primarily for private relaxation and study.

Activity within it may include outdoor cooking, eating, reading, etc. Provision should be made for both day and night use as well as some use during all seasons of the year. It is also desirable that a portion of this area be surfaced with an all-weather material.

The location of the outdoor living areas should be adjacent to the apartments and permit easy access from the apartments to the area.

Seating should be provided.

b. Parking

Provide 1-1/2 parking spaces for each living unit.

Parking areas should be small and unobtrusive.

Provide pedestrian walks to and from parking areas.

c. Entrance Court

This area should act as a transition between the public areas (roads and parking areas) and the private apartments.

d. Storage Areas

Trash and garbage storage should be easily accessible from each living unit and from the service system.

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SAMPLE PROGRAM

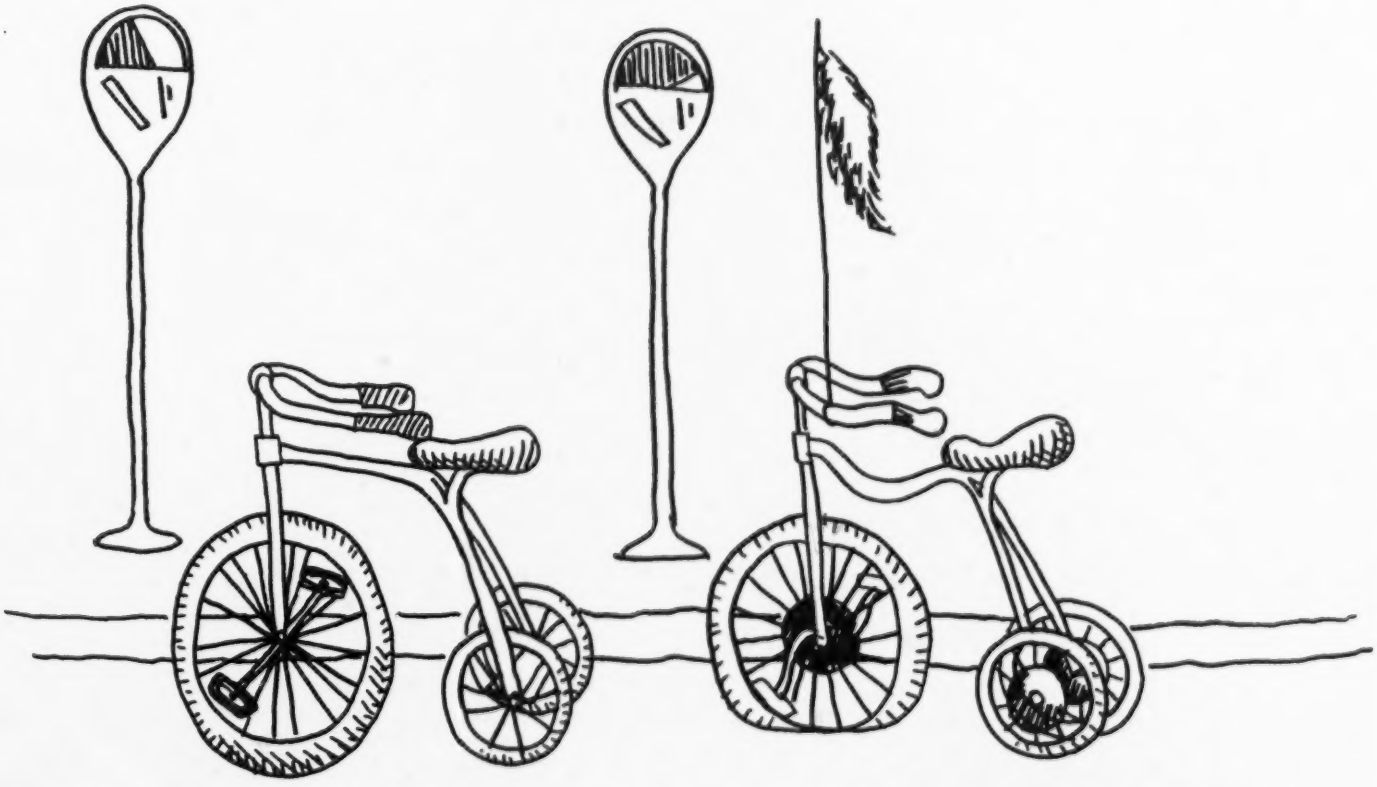
APARTMENT UNITS

Site Development - Program Criteria (continued)

e. Storage Area (continued)

Bicycle racks should be provided adjacent to the living units.

f. Temporary fencing and lighting to be provided for staging areas from "Security Allowance".



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